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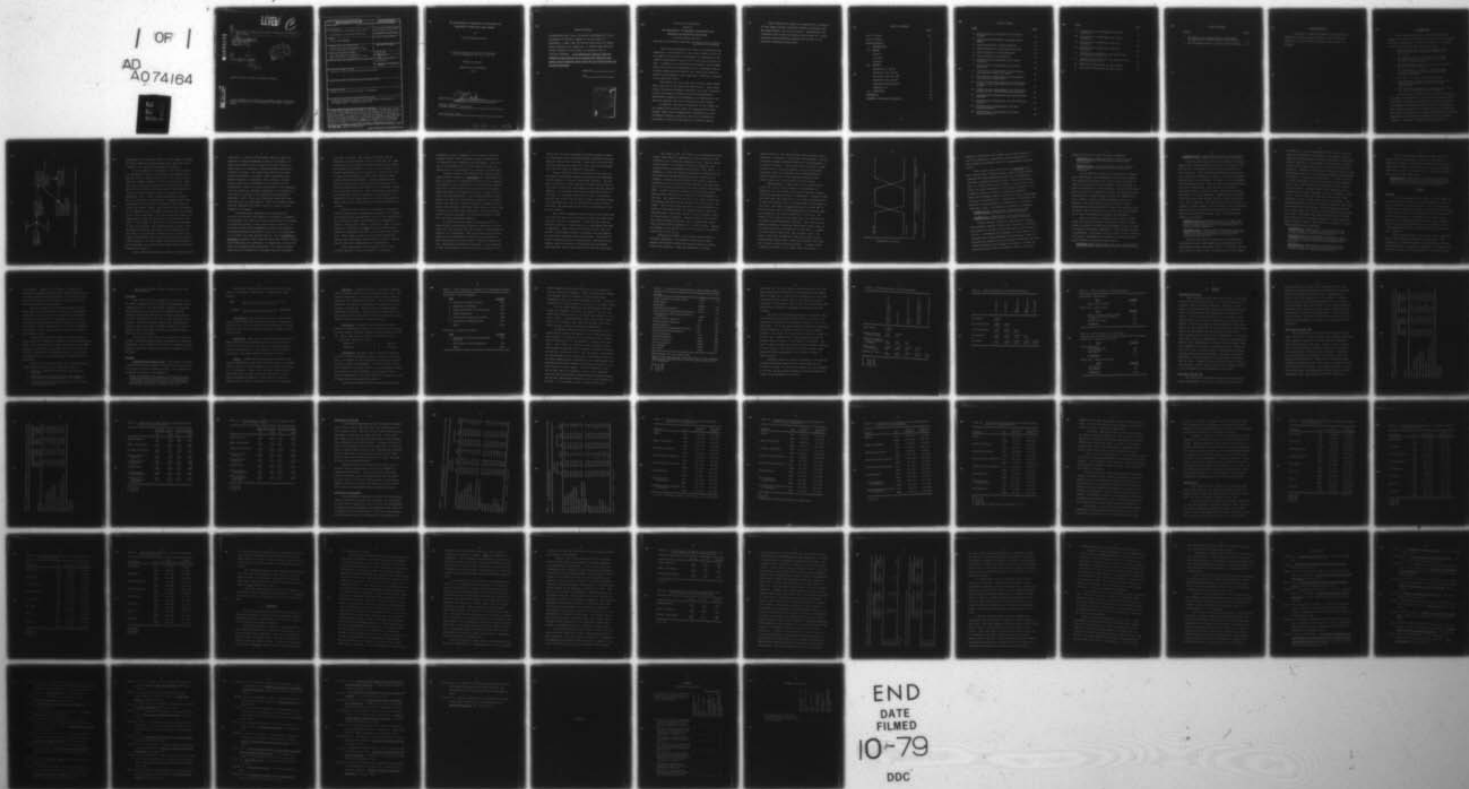
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THE RELATIONSHIP OF MANAGERIAL INTELLIGENCE AND EXPERIENCE TO B--ETC(U)  
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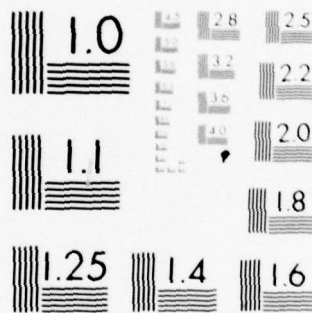
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The Relationship of Managerial Intelligence and Experience to Behaviors Under Stress.

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by

Jeffrey Wayne Anderson

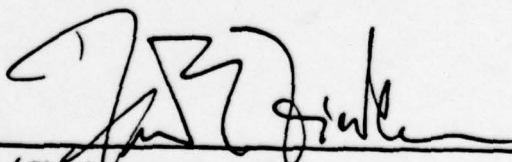
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Abstract

THE RELATIONSHIP OF MANAGERIAL INTELLIGENCE AND  
EXPERIENCE TO BEHAVIORS UNDER STRESS

by Jeffrey Wayne Anderson

Chairman of Supervisory Committee: Professor Fred E. Fiedler  
Department of Psychology

This study investigates the impact of intelligence and experience on the behaviors of Army squad leaders, as well as the degree to which these relationships are moderated by the leader's perceptions of stress in his work group and with his boss. In general it is found that the behavior of the leader under stress and the relationship of his intelligence and experience remain unclear, however, the leader does appear to change his perceptions of the leadership situation in response to his perceived stress.

The subjects in this study were 138 Army squad leaders from a division in the process of mobilization. These squad leaders received performance evaluations from their superiors as well as ratings of behavior from their subordinates. Additionally, measures of intelligence and experience in the Army were obtained from their official military records.

In general, the leader's behaviors in this sample did not change with increased levels of self-perceived stress. Instead, these leaders changed their perceptions of their leadership situation, seeing the job as more valuable or worthwhile if there was some degree of perceived stress.



These unpredicted results are explained by an analysis of this sample and the constraints normally associated with the squad leader's job in the military. Additionally, the findings of this study have obvious implications for current military rating procedures, emphasizing the need for behaviorally anchored rating scales.

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## I. INTRODUCTION

This study investigates the relationship between managerial intelligence and experience and various leadership behaviors displayed in a natural work setting. It attempts to answer several important general questions:

1. The extent to which leader effectiveness under stress depends upon structuring behavior of the leader.
2. The extent to which, in the absence of stress, the effectiveness of the leader depends upon considerate leader behavior.
3. The differential effects of internal and external stress upon leader behavior.
4. The correlation of experience and intelligence to leader behaviors under stressful and non-stressful conditions.
5. The effect of stress upon leader behavior.
6. The influence of leadership motivation upon the experience/intelligence - stress - behavior relationship.
7. The influence of stress and leadership style upon the leader's perception of the situation.

The model used in this study is presented in Figure 1. It argues that depending on the individual's personality and leadership motivation, as moderated by stress, the leader's intelligence or experience leads directly to his behavior. While previous research, as outlined below, has emphasized the superior's rating of the leader's performance, this study emphasizes the subordinate's evaluations of the leader's behavior. Likewise, it emphasizes the leader's own



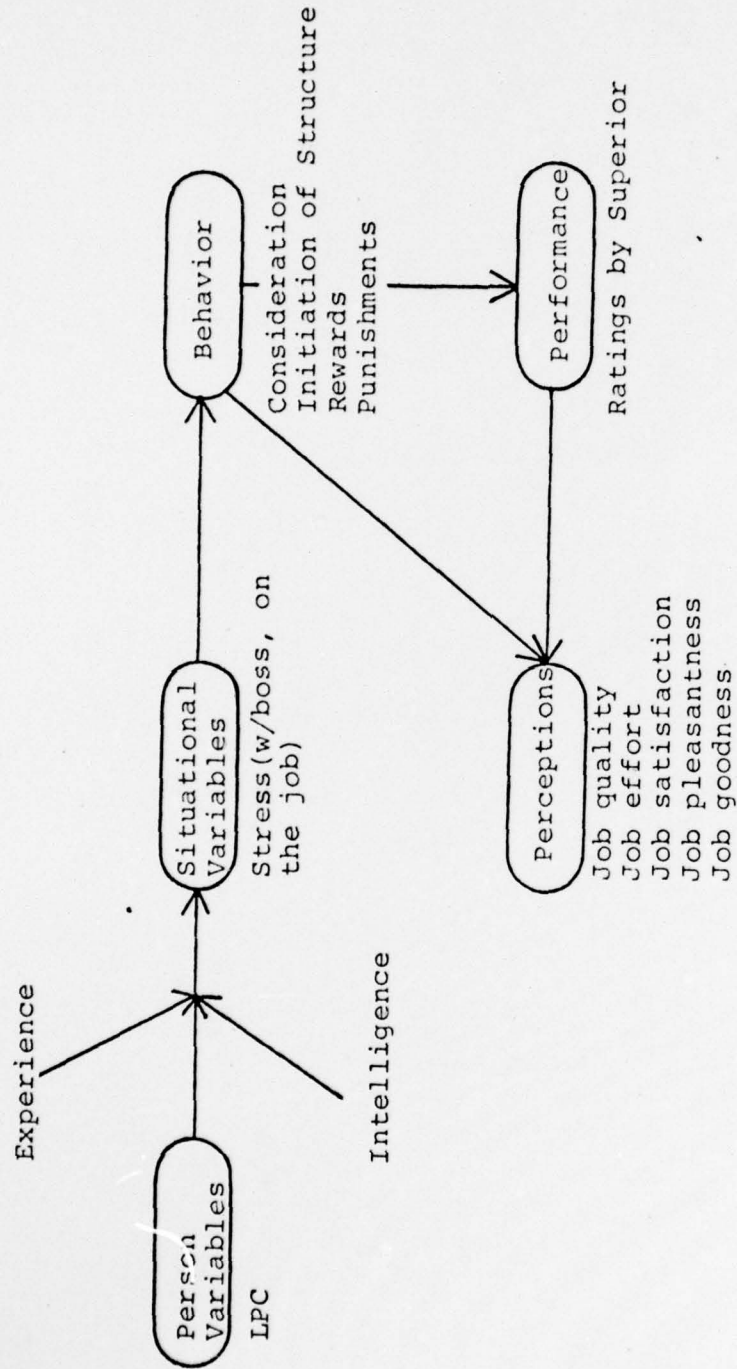


Figure 1. The Model of the Relationship of Intelligence and Experience to Leader Behavior Under Stress

evaluations of his behavior and the job environment, assuming that these behaviors and perceptions bear some direct relationship to the superior's performance evaluation.

The measurement of intelligence first forced its way into the American public's consciousness during World War I. Then two million soldiers were tested by the Army and classified as "alpha" (literate) or "beta" (illiterate). Since that time, intelligence measures have rapidly become instruments for the selection and utilization of human resources, not only for the military, but for all walks of life (Hernstein, 1972). There is some disagreement, however, about a definition of "intelligence". Spearman (1927) felt intelligence was the ability to perceive relationships or connections between things. Hunt (1972) defined intelligence as the summation of all learning experiences and the integration of these experiences. For this discussion we will use a combination of these two definitions, as presented by Crow (1967). Intelligence is the ability to use past experiences to solve new problems. This problem-solving ability of the individual depends upon the amount of his experiences that are similar to the present situation and his ability to see common relationships in those experiences which bear upon the current problem. For this reason, task-relevant experience and intelligence are used by organizations when selecting new managers and leaders.

Almost every task involving organized activity requires

leadership. In fact, no other single factor is nearly so important in group performance as that of the leader. Although the leader's role is usually directive, there are other aspects of leadership, including problem solving and conflict resolution. The leader must maintain the group, define the situation, set goals, reduce uncertainty, and provide stability. Leadership, then, involves a balance between creativity and adherence to the dictates of the organization. While the rules and procedures of the organization are learned by experience, adherence to the dictates of the group is a portion of the definition of intelligence (Hollander, 1978). Thus, good leadership seems based upon both experience and intelligence. These two variables should directly influence the leader's ability to affect the performance of the group.

Intelligence and experience are frequently-used criteria for selection and promotion of personnel to managerial positions, but their use as such criteria has been seriously questioned because of their poor predictive ability. In two major reviews of the leadership literature the reported correlations between intelligence test scores and performance of the leader have been unexpectedly low. In his Handbook of Leadership, Stogdill (1974) reported thirty-two studies dealing with intelligence and leadership. In twenty-two, leaders were found to be brighter than non-leaders; five found no difference; and five reported the intelligence measure confounded



with other variables. The average correlation between leadership and intelligence in these studies was .28. Mann (1959) reported an average correlation between intelligence and leadership performance of .10 to .25 in a review of 125 studies representing over 700 findings. Forty-six per cent of these studies showed a positive relationship between leader status and intelligence. Studies completed after these two major reviews also reported a low positive correlation between tested intelligence and leadership. Though the correlations are low, no other factors were associated with leadership status as regularly as intelligence. The smartest one in the group, however, was not necessarily the leader, nor was the intelligent person always successful as a leader.

Ghiselli (1963) reported a curvilinear relationship between intelligence and managerial performance. As samples were drawn from successively higher levels of the organization, the correlations between intelligence and performance increased. Korman (1966, 1968), in contrast, argued for intelligence as a predictor for first line supervisors but decreasing in importance and utility as one moves "up the ladder". Thus, though a positive relationship between performance and intelligence seems to exist, previous research has not found that relationship to be consistent.

Since intelligence is the creative use of task-relevant experience, the relationship of experience to

leadership is also of interest. In a review of thirteen studies, Fiedler (1970) reported a median correlation of  $-.12$  between leader experience and performance. As in the case of intelligence there is only marginal evidence to support the use of experience as a predictor of leadership.

Stogdill stated in his Handbook that superior intelligence was not viewed as a requirement for leadership, but those in positions of leadership did tend to be of superior intelligence. This indicates that intelligence may interact with other characteristics of the person or the situation which contribute to the person's value as a leader, such as stress and leadership style. How a group performs in emergencies and under stress frequently determines its eventual success and survival. Several researchers (Edgerton, 1953; Sells, 1962; Torrance, 1958) have shown that the leader plays a decisive role under these conditions. He must alleviate stress and provide guidance for the group to remove itself from the stress-producing situation.

In recent research, Fiedler and Leister (1977), in their multiple screen model, reported a moderator effect of stress with the boss upon the relationship of intelligence or experience to performance. Under high stress with the boss experience was significantly correlated with performance, while intelligence was uncorrelated. Under low stress with boss, the opposite relation was indicated. In an extension of this study Knowlton (1979) found under conditions of low



stress with boss the intelligent subordinate made his superior "look good", while the unintelligent subordinate made his superior and work unit look bad. Under high stress with the boss the experienced subordinate rather than the intelligent one could best make his superior "look good".

Potter (1978) felt that one reason for the weak, inconsistent relationship between intelligence and performance was the presence of certain intervening variables. The presence or absence of these variables determine the ability of the leader to apply his intelligence toward effective job performance. He also partly supported the hypothesis that intelligence is used when stress with the boss is low and experience when stress with the boss is high. He further found that intelligence may not be particularly helpful in staff positions, and under high stress with boss conditions it may be very harmful.

Zais (1979) extended the Potter research and found that line officers tended to be effective if they were high in intelligence and low in experience. Staff officers, however, were more effective if they were low in intelligence and high in experience. When stress with the boss was low, the line officer's intelligence strongly correlated with performance, but experience interfered with effectiveness. The staff officer's intelligence did not substantially contribute to performance under low stress but interfered with performance under high boss stress when experience became more important.

This argues, then, that there is an interaction between leader intelligence or experience and some variables in the situation, i.e., stress and leadership style. Such an interaction approach to leadership is found in Fiedler's contingency model of leadership effectiveness (1964, 1967). It attempts to relate the leader's motivational structure to effectiveness by considering individual and situational attributes. Fiedler used an eighteen-item bi-polar semantic differential scale, titled the Least Preferred Coworker (LPC) Scale, to tap this motivational hierarchy (Fiedler and Chemers, 1974). On this scale the individual describes the person whom he would least want as a coworker on these eighteen dimensions. The summed score for this scale, when divided into low, medium, and high classes, measures the motivation of the leader. The low LPC leader, who sees his least preferred coworker in unfavorable terms, is "task-motivated", while the high LPC leader, seeing the coworker in more favorable terms, is "relationship motivated". Though relatively uncorrelated with other personality measures, LPC is essentially stable with a median retest reliability of .67 (Rice, 1978). Fiedler and Chemers (1974) report that it has an internal consistency coefficient of .90 to .95.

According to Fiedler, these leaders perform best in different situations. To categorize situations, Fiedler analyzes the extent to which the situation gives the leader control and influence. Using the dimensions of leader-

member relations, task structure, and position power, he has developed a continuum of situational favorableness. This relationship between leadership motivation and performance is presented in Figure 2. The low LPC (task motivated) leader performs best in the most favorable and most unfavorable situations, while the high LPC (relationship-motivated) leader performs best in the moderately favorable ones. Several hypotheses follow directly from this model.

Though Fiedler's (1967) model did not specifically relate the stress of the situation to performance, he emphasized that the leader's task-related behavior becomes especially important in times of "emergency". Torrance (1958) concluded that power exercised by the leader constituted one of the most important forces in maintaining the adjustment of the group. The result of not exercising this power was in his view chaos, panic, and disorganization. He equated power with organizing the work or task-related activities. The leader's use of power, on the other hand, was characterized by rapidly restructuring the situation. One of the most important functions of the group leader under stress, then, is to provide structure and stability for the group. A number of writers (Bass, 1960; Carp, 1961; Torrance, 1954; and Ziller, 1955) have hypothesized that groups under stress should perform better under leaders who structure the situation or who are task-oriented (low LPC). A similar study in Holland (Fiedler, et al., 1961) showed that while a



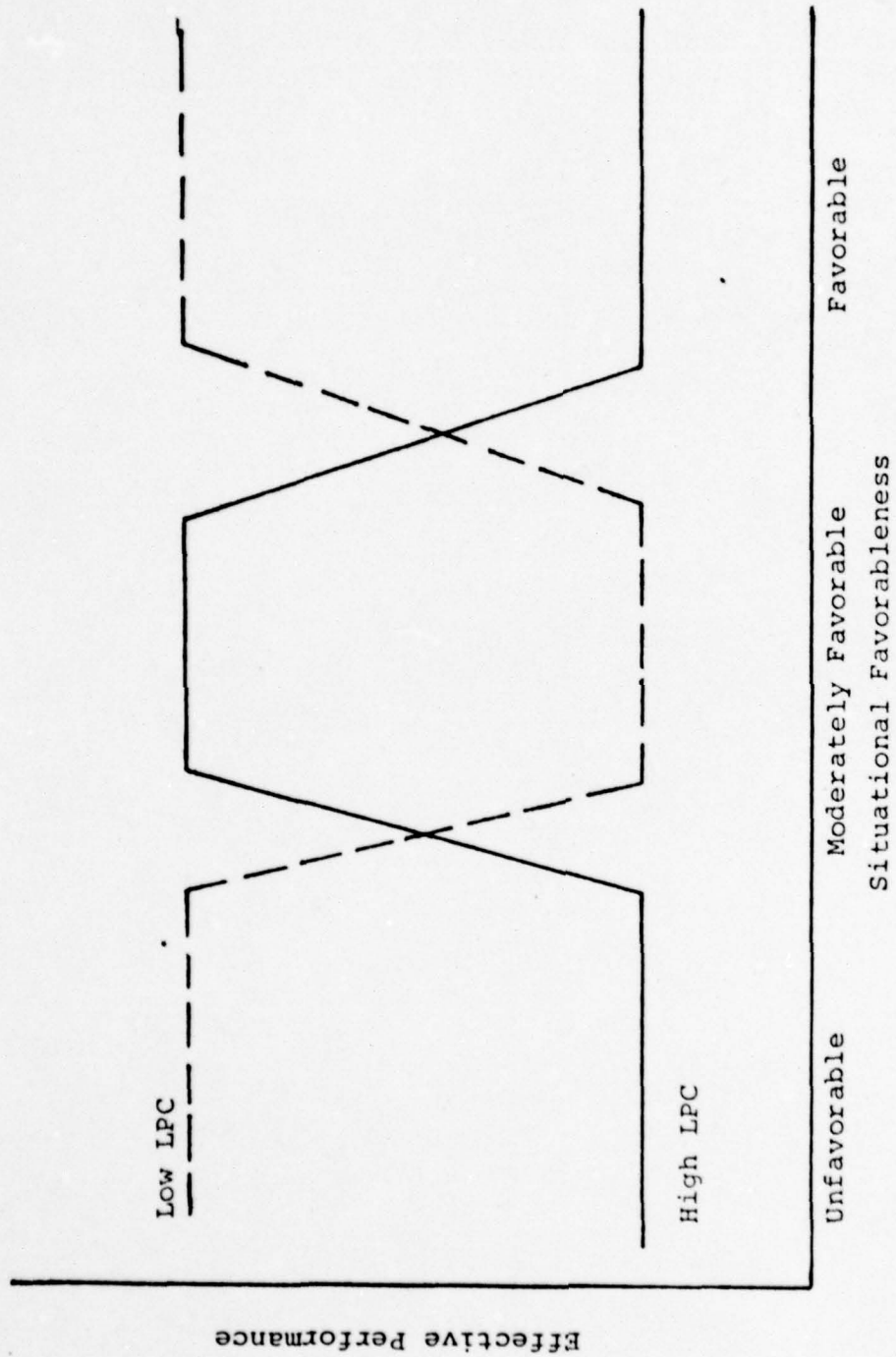


Figure 2. The Contingency Model of Leadership Effectiveness

relatively tension-free and relaxed group climate appears to call for a permissive, considerate leader (high LPC), the more stressful environment calls for a task-oriented (low LPC) leader.

Other authors have focused upon the behaviors necessary in high stress situations only. Wispe and Lloyd (1955) concluded that those experiencing high threat demand more structure, presumably from the leader. Korten (1962) noted that as a country moved from low stress to high stress situations, the people "demanded" of their rulers behaviors of an autocratic nature as a means of reducing uncertainty. Mulder and Stemerding (1963) found that in highly threatening situations, individuals felt a strong need for leadership and showed an increased demand for authoritarian or directive leadership. Thus, the following hypotheses are proposed:

HYPOTHESIS I A: Under stress the effective leader is more structuring than the ineffective leader.

HYPOTHESIS I B: When stress is not present the effective leader shows greater consideration behavior.

Fiedler further refined this hypothesis by showing that different sources of stress were important in determining whether the low LPC or high LPC leader would be more effective. By examining the adjustment of group members, he concluded that quasi-therapeutic and considerate leader attitudes were essential in some stressful situations, and task-oriented attitudes were essential in others. Previous research by Fiedler (1967) and Fiedler, O'Brien, and Ilgen



(1969) lead directly to the following hypotheses:

HYPOTHESIS II A: Under conditions of high external (boss) stress, the effective leader will be more structuring.

HYPOTHESIS II B: Under conditions of high internal (group) stress the effective leader will be more considerate.

In the extensive review of the literature on experience, intelligence, and leadership, Borden (1976) asserted that personality variables may interact with the amount or quality of experience or with elements of the situation in which the experience is to be utilized. Leister (1975) found that if a leader is subjected to stress, he functions rather automatically, relying on past solutions to accomplish the task. Earlier, Lazarus (1966) hypothesized that an individual, under high stress, may use defensive coping mechanisms based upon experience (things that worked well in the past), while conditions of low stress are more conducive to the use of problem-solving ability (intelligence).

Previous research by Leister (1977) and Zais (1979) showed that under low stress with boss the leader's intelligence is highly correlated with performance, while in highly stressful situations, experience is more strongly related to performance. Consistent with the results of this research, the leader's intelligence and experience should bear predictable relations to behavior under stress.

HYPOTHESIS III A: Intelligence will have a high positive correlation with behavior under low boss or group stress.

HYPOTHESIS III B: Experience will have a high positive correlation with behavior under high stress conditions.

Fiedler's model indicates that the behavior of leaders depends upon their motivational structure as measured by the LPC scale and the amount of control that they perceive in their situation. The low LPC (task-motivated) leader faced with a stressful situation will develop very clear guidelines and procedures to be followed. He tends to be a no-nonsense, down-to-business person. Thus, he tolerates little deviation from task accomplishment. The high LPC (relationship-motivated) leader, on the other hand, relies upon his group for support in crisis situations. Korman (1966) and Leister (1975) have shown that leaders' behaviors under stress tend to be rather automatic. This implies that leaders behave in a manner to regain control of the situation. Such controlling behaviors such as rewarding and punishing are, therefore, likely to be affected by stress. Thus, the following hypotheses are proposed:

HYPOTHESIS IV A: Under stress the low LPC leader will increase punishments, system oriented, and structuring behaviors and decrease rewards, consideration, and person oriented behaviors.

HYPOTHESIS IV B: Under stress the high LPC leader will increase rewards, consideration and person oriented behaviors and decrease punishments, structuring and system oriented behaviors.

Previous research has indicated a stress-moderated relationship between intelligence and experience and task performance (Leister and Fiedler, 1977). Similarly, line and staff officers utilize their job experience and intelligence

differently for task accomplishment (Zais, 1979). Since we know that performance is influenced by personality, job experience and intelligence, and rated performance is based upon observed behavior, it is reasonable to hypothesize that the various leader behaviors are also influenced by these three variables. Therefore, LPC may have a moderating effect on the intelligence-behavior or the experience-behavior relationships in stressful or non-stressful conditions. In other words, in a relaxed environment the leader may apply his intelligence only to those behaviors which are preeminent in his motivational hierarchy. Likewise under stress experience may be specifically related to behaviors that are "important" to the leader. Fiedler (1970) has shown that under stress task-motivated (low LPC) leaders concentrate upon the task, their primary motivation, while in a relaxed environment they become more involved with their group, their secondary motivation. On the other hand, the stressed high LPC (relationship motivated) leader concentrates upon group maintenance, his primary motivation while in a relaxed environment he seeks relationships outside the group. Based upon this conclusion, the following hypotheses are formulated:

HYPOTHESIS V A: Under stress, the experience of the low LPC leader will highly correlate with punishing, system oriented, and structuring behaviors.

HYPOTHESIS V B: Under nonstressful conditions, the intelligence of the low LPC leader will highly correlate with rewards, person oriented and consideration behaviors.

HYPOTHESIS V C: Under stress, the experience of the high LPC leader will highly correlate with rewards, person oriented and consideration behaviors.



Finally, while McGrath (1976) and Selye (1976) have argued that a certain amount of stress is necessary to motivate performance, in general one expects stress to be an undesirable condition from the point of view of the leader. Certainly one would not actively seek a stressful situation. Hence, the following hypothesis:

HYPOTHESIS VI: Under stress the leader will perceive his job as less pleasant, good, and satisfying. On the other hand, he will perceive the job as requiring more effort, as more valuable, and higher in quality.

## II. METHOD

### Subjects

From a larger sample of 152 subjects (Bons, 1974), 138 individuals were selected for secondary analysis. Bons collected the measures indicated below on 152 male Army squad leaders from an infantry division in the process of mobilizing. An Army squad leader may be considered the first line supervisor of the military. He normally leads a unit of ten people and has responsibility not only for task accomplishment but for the feeding and housing of the workers. He is a non-commissioned officer ranging in rank from corporal to staff sergeant.

These individuals were first tested ( $t_1$ ) at the beginning of their Advanced Individual Training (AIT). This training is an intensive program which follows Basic Individual Training and is designed to familiarize the soldier with weaponry, tactics, and duties peculiar to his specific unit



of assignment. Normally such training is conducted at specialized training centers by cadre familiar with not only the subject matter but with methods of instructing as well. These cadre members were not however, responsible for the care and well-being of the trainees.

Due to the number of individuals brought into the Army during the Vietnam conflict, however, a new program to teach AIT in a field unit as it mobilized was developed by the Army for the subjects of this sample. None of their previous military experience directly applied to this type of training. These squad leaders were not only responsible for training the new soldiers but for their care, feeding, and housing as well.

A retest for these same leaders ( $t_2$ ) was conducted after their unit successfully completed the Army Training Test (ATT). This test served as a final examination of the combat readiness of each unit and assessed the extent to which the unit had accomplished its training mission. The time interval between  $t_1$  and  $t_2$  in the Bons study ranged from six to nine months.

Subjects for the present study were selected from the larger sample according to the following criteria:

1. They have completed both pre-test and post-test measures;
2. they had been in the position of squad leader on at least one of the two occasions of testing;
3. they had been rated on both occasions by at least two subordinates and;

4. they had been rated on both occasions by at least two superiors.

### Procedure

Bons collected data in company size units with 25 to 30 leaders assembled in one location and the members of the company (from 50 to 100 individuals) assembled in another. The differences in size of the unit depended upon the company's progression through the training program and the extent of mobilization at the time of administration of the measures. These two separated groups were simultaneously tested so that there were no command influences to bias responses. None of the data collected were reported back to officials of the U.S. Army.

The measures listed below were contained in one test booklet, including questions about demographics and personal background. Also included were measures of education, intelligence, experience, training, and previous positions held in the Army.

### Measures

Leastpreferred coworker scale. Each subject was given a sixteen-item bi-polar adjective checklist on which he was to describe his least preferred coworker. The following instructions were given to the subjects:

Think of the person with whom you can work least well. He may be someone you work with now or someone you knew in the past. He does not have to be the person you like least well but should be the person with whom you had the most difficulty in getting a job done.

The subject then described this person on the sixteen items of the semantic differential. Representative items include:

Warm :\_\_ :\_\_ :\_\_ :\_\_ :\_\_ :\_\_ :\_\_ : Cold  
8 7 6 5 4 3 2 1

Friendly :\_\_ :\_\_ :\_\_ :\_\_ :\_\_ :\_\_ :\_\_ : Unfriendly  
8 7 6 5 4 3 2 1

Intelligence. Upon entry into the Army every enlisted soldier must complete the Army General-Technical Examination. Scores on this test are entered into an individual's official military record and were obtained from these records for use in this study.

Experience. Since none of the subjects had any direct experience with this training program (it was the first of its kind in the history of the Army), work-relevant experience was operationalized as the amount of time the subject had served in the Army, measured in months of service.

Stress. Included in the questionnaire booklets were semantic differential items that asked the subject to describe certain aspects of his environment on a continuum from stressful to unstressful. These scales included questions about perceived stress with the boss, with subordinates, stress among subordinates without the leader present, stress in general, and the leader's conception of stress in the group.

Behaviors. A modified version of Stogdill's LBDQ XII (1963, Stogdill & Coons, 1957) was administered to all of the leader's subordinates. Six of the original twelve behavior categories were included in the study. They had high Kuder-Richardson reliability coefficients, and appeared to be well suited to the military. These included consideration and initiation of structure. Other behaviors measured were rewards, administrative punishment, personal punishment, system oriented behavior and person oriented behavior.

Perceptions. Included in each questionnaire were questions concerning the worth, value, effort required, satisfaction obtained, goodness, quality, and pleasantness of each job. These items were in response to questions such as:

I describe my present job as:

Worthless	1	2	3	4	5	6	7	Valuable
Unpleasant	1	2	3	4	5	6	7	Pleasant

Performance. The squad leader's superiors rated him on a set of eight performance behaviors using a Likert-type scale. An example of this performance evaluation as derived by Bons is shown in the Appendix. A factor analysis (Bons, 1974) identified two major factors in the performance ratings, one relating to task performance, one relating to interpersonal performance. The items and factor loadings for each of these factors are presented in Table 1.

Scores were computed by using separately calculated



Table 1. Factor Analysis of Superior's Performance Ratings.

---

Factor One - Task Performance

<u>Item</u>	<u>Loading</u>
1. Execution of Admin. Actions	.774
2. Technical Proficiency	.790
3. Taking Initiative for Innovations	.734
4. Organizing People	.697
5. Working with Officers and NCO's	.586
6. Execution of Demanding Jobs	.794
Eigen	4.151

## Factor Two - Person Performance

<u>Item</u>	<u>Loading</u>
1. Knowledge of Subordinate Personal Problems	.906
2. Good Rapport with Subordinates	.831
Eigen	1.236

---

factor weights multiplied by the score on that particular item as rated by the superior. These items were then summed and averaged across the number of raters, providing a standardized score for each performance behavior. Interrater reliability for this measure is in excess of .92 (Bons, 1974).

In this study experience and intelligence have been treated as orthogonal variables. To support this use, the correlation between these two variables was computed for the entire sample. Though marginally significant, this correlation of  $-.16$  indicates that these two measures share very little variance and may be considered independent.

In previous research by other investigators, the reliabilities of some of the measures used in this study have been reported. As noted above, Bons (1974) found an interrater reliability of .92 for superiors' ratings of the subjects. Rice (1978), in a review of the literature on the least preferred coworker scale, reported a median test-retest reliability coefficient of .67. The test-retest correlations for the measures used in this study are presented in Table 2. The three measures used as predictors, LPC, intelligence, and experience demonstrate adequate test-retest reliabilities in this as well as other samples. The other measures do not show a high degree of stability. This is to be expected, given the six to nine-month interval between testing sessions and the many intervening influences such as unit training and the ATT. It is reasonable, then, to expect that these

Table 2. Test-retest Correlations for Squad Leader Sample.

Measure	r	N
Least preferred coworker (LPC)	.47***	149
Intelligence	--- <sup>a</sup>	
Experience	.99***	149
Consideration Behavior	.27***	137
Self-perceived Consideration Behavior	.47***	126
Self-perceived Initiating Structure Behavior	.43***	126
Person Oriented Behavior	.16#	121
System Oriented Behavior	.12	121
Reward Behavior	-.07	114
Administrative Punishment Behavior	.01	115
Personal Punishment Behavior	-.08	119
Task Performance	.24**	134
Person Performance	.15#	134
Job Satisfaction	.38***	148
Job Pleasantness	.40***	136
Job Goodness	.40***	132
Job Value <sup>b</sup>	.34***	131

<sup>a</sup>Intelligence was only tested once.

<sup>b</sup>None of the other authors using this data set have reported test-retest reliabilities for the job quality and job effort variables.

\*\*\*  $p \leq .001$

\*\*  $p \leq .01$

\*  $p \leq .05$

#  $p \leq .10$



behaviors did, in fact, change, and the measures do not have high test-retest reliability as a reflection of this change. These findings are in line with the hypotheses of this study since Bons (1974) reported that  $t_2$  was perceived as more stressful by subordinates than  $t_1$ , and it is here argued that stress causes changes in performance, behaviors, and perceptions.

The stress and perception measures of this study were intercorrelated to determine their degree of overlap. The resulting correlations are presented in Tables 3 and 4, respectively. Due to the high correlation between the measures, a factor analysis of them was calculated using a Varimax Rotation. The results of these factor analyses are shown in Tables 5 and 6 respectively. These calculations show two distinct types of stress in the leader's environment. One type of stress focuses upon stress with the leader's superior, or "boss stress". The second stress factor focusses upon stress with and among members of the leader's group, or "group stress".

Similarly, when the leader's responses to the work environment perception questions are factor analyzed, two factors are found. The first factor deals with the enjoyment of the job, and the second concerns the perceived effort involved in accomplishment of the job.

Table 3. Intercorrelations of Stress Measure.

	Amount of stress subject feels he is under	Boss stress	Stress in group without leader	Stress in leader's group according to leader	Stress with subordinates
Boss Stress	.17# (132)				
Stress in group without leader	.26* (90)	.43*** (91)			
Stress in leader's group according to leader	.08 (130)	.01 (130)	-.15 (89)		
Stress with subordinates	.42*** (87)	.38*** (89)	.54*** (87)	.70*** (89)	
Objective Stress	-.01 (135)	-.19* (134)	-.39*** (92)	.89*** (132)	-.15 (89)

# p  $\leq$  .10  
 \* p  $\leq$  .05  
 \*\* p  $\leq$  .01  
 \*\*\* p  $\leq$  .001

Table 4. Intercorrelations of Perception Measures.

	Job Quality	Job Effort	Job Satisfaction	Job Pleasantness	Job Goodness
Job Effort	.65*** (136)				
Job Satisfaction	.38*** (136)	.50*** (137)			
Job Pleasantness	.27** (132)	.20* (133)	-.07 (133)		
Job Goodness	.28** (127)	.34*** (128)	.70*** (128)	-.11 (127)	
Job Value	.22* (130)	.51*** (131)	.50*** (131)	.35*** (128)	.59*** (127)



Table 5. Factor Analysis of Stress Measures.

## Factor One - Boss Stress

<u>Item</u>	<u>Loading</u>
Stress with the Boss	1.0

## Factor Two - Group Stress

<u>Item</u>	<u>Loading</u>
Stress in group without leader	.69
Stress in group according to leader	.80
Stress with group	.81
EIGENVALUE	2.33

Table 6. Factor Analysis of Perceptions.

## Factor One - Enjoyment of the Job

<u>Item</u>	<u>Loading</u>
Job Satisfaction	
Job Pleasantness	.80
Job Goodness	.82
Job Value	.84
EIGENVALUE	3.57

## Factor Two - Effort at the Job

<u>Item</u>	<u>Loading</u>
Job Quality	.45
Job Effort	.63
EIGENVALUE	1.13

### III. RESULTS

#### Hypotheses IA and IB

These hypotheses stated that under stress the effective leader was more structuring while in a relaxed atmosphere the effective leader was more considerate. They imply a high positive correlation between structuring and performance under stress and consideration and performance in the absence of stress. As may be seen from Tables 7 and 8, however, these hypotheses were only partially supported by the data of this sample. In fact while under stress the effective leader saw himself as more structuring but his subordinates did not agree. None of the subordinate evaluated behaviors under group stress significantly correlated with performance. In the high boss stress condition, unexpectedly, reward and consideration behaviors were significantly correlated with performance while the hypothesized initiation of structure was not. Under low stress (for boss or group) rewards, consideration and person oriented behavior were as predicted, correlated with person performance. Their relation to task performance was weaker and less clear. Though the leader perceived that his lack of structuring in the low stress condition was strongly related to his performance, his subordinates did not agree.

#### Hypotheses IIA and IIB

The second set of hypotheses argued that the relationships of Hypotheses I would only be found in conditions of

high external (boss) stress since intragroup stress would demand the considerate behaviors characteristic of the high LPC or relationship motivated leader. Looking again at Tables 7 and 8 this hypothesis is not supported. Rewards, person oriented behavior and consideration are correlated with performance under the external or boss stress condition. Under high group stress none of the measured behaviors were significantly correlated with performance. Under high boss stress, however, reward and consideration behaviors were correlated with performance. This was not as predicted by the hypotheses.

#### Hypotheses IIIA and IIIB

These hypotheses asserted that intelligence would be highly correlated to leader behaviors under relaxed conditions while experience would be correlated with these behaviors under more stressful conditions. Tables 9 and 10, however, show that only personal punishing behavior was correlated with intelligence in the low stress condition. Experience, on the other hand was correlated with system oriented and person oriented behaviors. Under stress, experience significantly correlated only with the subject's perception of his own initiation of structure. Intelligence, however, correlated with personal punishing behavior under high boss stress. In general, then, these hypotheses were not supported.



Table 7. Correlations of Performance with Leader Behaviors (N in parentheses)

Behavior	Low Boss Stress		High Boss Stress	
	Task Perfor- mance	Person Perfor- mance	Task Perfor- mance	Person Perfor- mance
Reward	-.12(55)	.31*(55)	.34*(53)	.09(53)
Admin. Punishment	-.02(54)	-.12(54)	.07(51)	.06(51)
Personal Punishment	.18(54)	.02(54)	.02(54)	-.06(52)
Person Oriented Behavior	-.04(58)	.25#(58)	.27#(51)	.12(51)
System Oriented Behavior	.05(58)	.20(58)	.14(58)	-.15(51)
Consideration	.03(69)	.23#(69)	.36**(55)	.32*(55)
Self Perceived Consideration	-.14(70)	.08(70)	-.07(54)	.01(54)
Self Perceived Initiation of Struc.	-.24*(70)	-.16(70)	.11(54)	-.50(54)

\*\* p &lt; .01

\* p &lt; .05

# p &lt; .10

Table 8. Correlations of Performance with Leader Behaviors (N in parentheses)

Behavior	Low Group Stress		High Group Stress	
	Task Perfor- mance	Person Perfor- mance	Task Perfor- mance	Person Perfor- mance
Reward	.13(69)	.25*(69)	-.01(39)	.05(39)
Admin Punishment	-.02(67)	-.04(67)	.03(38)	-.14(38)
Personal Punishment	.12(67)	-.04(67)	.24(39)	-.01(39)
Person Oriented Behavior	.17(71)	.25*(71)	-.13(38)	-.02(38)
System Oriented Behavior	.11(71)	.03(71)	-.01(38)	-.09(38)
Consideration	.17(84)	.31**(81)	.10(40)	.15(40)
Self Perceived Consideration	-.20#(82)	.05(82)	.11(42)	.14(42)
Self Perceived Initiation of Struc.	-.24*(84)	-.16(82)	.28#(42)	.22(42)

\*\* p  $\leq$  .01  
 \* p  $\leq$  .05  
 # p  $\leq$  .10

Table 9. Correlations of Experience and Intelligence with Behaviors Under Low Stress.

	Low Group Stress		Low Boss Stress	
	$r_{IQ}$	$r_{EXP}$	$r_{IQ}$	$r_{EXP}$
Reward Behavior	.14 (74)	.16 (74)	-.01 (57)	.11 (57)
Admin. Punishments	.13 (72)	-.09 (72)	.04 (56)	-.10 (56)
Personal Punishments	.38* (72)	-.01 (72)	.23# (56)	.02 (56)
Person Oriented Behavior	.07 (76)	.23* (76)	.03 (60)	.12 (60)
System Oriented Behavior	.09 (76)	.24* (76)	.04 (60)	.27# (60)
Consideration	-.07 (89)	.04 (89)	-.01 (70)	.23# (70)
Self-Perceived Consideration	-.20# (87)	.13 (87)	-.11 (72)	.02 (72)
Self-perceived Initiation of Structure	-.01 (87)	-.07 (87)	-.01 (72)	-.07 (72)

\*\*  $p \leq .01$ \*  $p \leq .05$ #  $p \leq .10$



Table 10. Correlations of Experience and Intelligence with Behaviors Under Stress.

	High Group Stress		High Boss Stress	
	$r_{IQ}$	$r_{EXP}$	$r_{IQ}$	$r_{EXP}$
Reward Behavior	.04 (42)	-.03 (42)	.13 (59)	.06 (59)
Admin. Punishments	.04 (41)	.12 (41)	.07 (57)	.08 (57)
Personal Punishments	.18 (42)	-.08 (42)	.38** (42)	-.08 (58)
Person Oriented Behavior	-.08 (42)	-.10 (42)	-.05 (58)	.11 (58)
System Oriented Behavior	-.06 (42)	.02 (42)	.03 (58)	.06 (58)
Consideration	-.18 (43)	.16 (43)	-.18 (62)	-.11 (62)
Self-perceived Consideration	-.21 (46)	.02 (46)	-.23# (61)	.15 (61)
Self-perceived initiation of Structure	-.15 (46)	.32* (46)	-.15 (61)	.29* (61)

\*\*  $p \leq .01$ \*  $p \leq .05$ #  $p \leq .10$

Hypotheses IVA and IVB

It was further hypothesized that the leader's behavior under stress would be that which was most characteristic of his leadership style. Thus the low LPC leaders would be more punishing, structuring and system oriented. On the other hand, under stress the high LPC leader would be more rewarding, considerate and person oriented. As shown in Tables 11 and 12, the hypotheses were also not supported. The low LPC leader's behavior under stress is not significantly different from the behavior of low LPC leaders who do not feel that they are under stress from the group or the boss. The same was true for the high LPC leader.

Though behaviors seem unaffected by stress, the individual leader's perception of the work environment is significantly different. The low LPC leader under group stress describes his job as requiring more work and effort but also feels it to be more valuable, more satisfying and higher in quality. The high LPC leader sees his job under group stress as significantly more satisfying and good.

Hypotheses VA through VC

These hypotheses attempted to specify the relationship between leader style, stress, and experience or intelligence. As may be seen in Tables 13, 14, 15, and 16, the correlations of experience and intelligence with behaviors under stress are in general low and non-significant. They are, additionally, seldom different from the correlations of intelligence and

Table 11. t-tests between Mean Behavior and Perception Ratings for Low and High Stress for Low LPC Leaders.

	LOW LPC						t Value
	Boss Stress		Group Stress		t Value	High	
	Low	High	Low	High			
Reward Behavior	575.86	640.86	593.21	646.63	-1.29		.91
Admin Punishment	492.85	950.86	505.54	516.13	.66		-.11
Personal Punishment	775.67	812.44	783.79	814.25	-.62		-.37
Person Oriented Behavior	394.00	397.5	378.25	435.00	-.13		1.62
System Oriented Behavior	370.26	391.75	374.69	394.88	-1.52		-1.26
Consideration	202.00	210.00	208.67	208.75	-.46		-.00
Self-perceived Consideration	220.38	233.13	232.50	228.75	-1.73#		.45
Self-perceived Initiation of Structure	236.15	249.38	245.00	247.50	-1.30		-.18
JOBWORK	111.15	125.88	115.00	120.00	-2.21*		-.38
JOBJOY	181.20	210.00	196.88	211.43	-1.29		-.49
Quality	56.15	62.35	58.13	60.00	-1.88#		-.33
Effort	55.38	63.53	56.88	60.00	-2.36*		-.47
Satisfaction	47.69	56.47	53.13	51.25	-1.80#		.25
Pleasantness	39.23	49.29	44.38	46.25	-1.60		-.22
Goodness	46.00	48.57	48.13	51.43	-.44		-.45
Value	46.00	58.67	51.25	52.86	-2.24*		-.19

\*\* p  $\leq$  .01      \* p  $\leq$  .05      # p  $\leq$  .10



Table 12. t - tests Between Mean Behavior and Perception Ratings for Low and High Stress for High LPC Leaders.

	HIGH LPC					
	Boss Stress		Group Stress		t	
	Low	High	Low	High	Value	Value
Reward Behavior	662.58	552.88	595.89	574.24	-1.73#	.27
Admin. Punishment	459.17	469.56	458.44	531.94	-.16	-.92
Personal Punishment	752.67	753.50	786.78	776.65	-.01	.13
Person Oriented Behavior	411.92	398.31	388.20	407.35	.52	-.58
System Oriented Behavior	386.77	382.38	387.60	395.18	.25	-.38
Consideration	222.50	237.04	241.00	238.89	-.88	.17
Self-perceived Consideration	450.24	230.00	228.18	227.00	.99	.16
Self-perceived Initiation of Structure	254.12	253.21	243.64	250.00	.08	-.65
JOBWORK	118.13	123.79	118.18	123.00	-1.38	-.91
JOBJOY	245.50	231.03	216.36	230.53	.24	-.62
Quality	60.00	61.38	60.00	61.00	-.63	-.36
Effort	59.06	62.41	58.18	62.00	-1.33	-1.26
Satisfaction	45.24	50.97	57.27	58.00	-2.35*	-.12
Pleasantness	100.59	54.48	52.73	56.00	.83	-.48
Goodness	44.38	56.21	54.55	54.74	-2.41*	-.03
Value	51.81	61.38	51.82	60.53	-1.51	-1.32

\*\* p  $\leq$  .01      \* p  $\leq$  .05      # p  $\leq$  .10

Table 13. Correlations of Experience with Each Measured Behavior (N in parentheses).

Behavior	LPC	Low Boss Stress	High Boss Stress
Reward	Low	.26 (21)	-.22 (16)
	High	.23 (13)	.13 (26)
Admin. Punishment	Low	-.19 (20)	-.10 (16)
	High	-.31 (13)	.09 (25)
Personal Punishment	Low	-.20 (21)	-.07 (16)
	High	-.30 (13)	-.31 (26)
Person Oriented Behavior	Low	.28 (23)	.02 (16)
	High	.03 (14)	.06 (26)
System Oriented Behavior	Low	.34 (23)	.19 (16)
	High	.37 (14)	-.10 (26)
Consideration	Low	.28 (26)	-.04 (17)
	High	.17 (18)	-.26 (27)
Self Perceived Consideration	Low	-.02 (27)	-.08 (16)
	High	-.08 (19)	.19 (28)
Self Perceived Initiation of Structure	Low	-.04 (27)	.42 (16)
	High	-.26 (19)	.30 (28)

<sup>a</sup>  $p \leq .10$  difference between low and high stress conditions

Table 14. Correlations of Experience with Each Measured Behavior (N in parentheses).

Behavior	LPC	Low Group Stress	High Group Stress
Reward	Low	.13 (29)	-.16 ( 8)
	High	.10 (22)	.11 (17)
Admin. Punishment	Low	-.31#(28)	.29 ( 8)
	High	-.04 (22)	.01 (16)
Personal Punishment	Low	-.23 (29)	.20 ( 8)
	High	-.11 (22)	-.57*(17) <sup>b</sup>
Person Oriented Behavior	Low	.34#(31)	-.33 ( 8) <sup>b</sup>
	High	.04 (23)	.01 (17)
System Oriented Behavior	Low	.30 (31)	.18 ( 8)
	High	.14 (23)	-.23 (17)
Consideration	Low	.11 (35)	.33 ( 8)
	High	.01 (27)	-.17 (18)
Self Perceived Consideration	Low	.06 (35)	-.31 ( 8)
	High	.18 (27)	-.16 (20)
Self Perceived Initiation of Structure	Low	.15 (35)	-.00 ( 8)
	High	-.17 (27)	.22 (20)

\*  $p \leq .05$ #  $p \leq .10$ 

b difference approached statistical significance



Table 15. Correlations of Intelligence with Each Measured Behavior (N in parentheses).

Behavior	LPC	Los Boss Stress	High Boss Stress
Reward	Low	-.10 (21)	.11 (16)
	High	-.02 (13)	.08 (26)
Admin. Punishment	Low	.14 (20)	.07 (16)
	High	-.20 (13)	-.08 (25)
Personal Punishment	Low	.53*(21)	.53*(16)
	High	.08 (13)	.25 (26)
Person Oriented Behavior	Low	-.12 (23)	-.09 (16)
	High	.02 (14)	.23 (26)
System Oriented Behavior	Low	.01 (23)	-.01 (16)
	High	-.26 (14)	.13 (26)
Consideration	Low	.22 (26)	-.16 (17)
	High	-.15 (18)	-.13 (27)
Self Perceived Consideration	Low	-.05 (27)	-.23 (16)
	High	-.11 (19)	-.02 (28)
Self Perceived Initiation of Structure	Low	.06 (27)	-.10 (16)
	High	.04 (19)	-.13 (28)

\*  $p \leq .05$

Table 16. Correlations of Intelligence with Each Measured Behavior (N in parentheses).

Behavior	LPC	Low Group Stress	High Group Stress
Reward	Low	-.06 (29)	.12 ( 8)
	High	.23 (22)	-.09 (17)
Asmin. Punishment	Low	.24 (28)	-.15 ( 8)
	High	-.03 (22)	-.20 (16)
Personal Punishment	Low	.53**(29)	.29 ( 8)
	High	.35 (22)	.10 (17)
Person Oriented Behavior	Low	-.07 (31)	-.08 ( 8)
	High	.25 (23)	-.00 (17)
System Oriented Behavior	Low	-.12 (31)	.67#( 8) <sup>a</sup>
	High	.19 (23)	-.18 (17)
Consideration	Low	.06 (35)	.05 ( 8)
	High	-.22 (27)	-.02 (18)
Self Perceived Consideration	Low	-.05 (35)	-.56 ( 8)
	High	-.14 (27)	.07 (20)
Self Perceived	Low	-.13 (35)	.08 ( 8)
	High	.08 (27)	.06 (20)

\*\*  $p \leq .01$ \*  $p \leq .05$ #  $p \leq .10$ a Difference between stress conditions  $p \leq .10$

experience with that same behavior under low stress conditions. In only two cases does this difference even reach a level of marginal statistical significance.

In general, experience does not correlate with any of the leader's behaviors under stress from the boss. It was negatively correlated with personal punishment for high LPC leaders under high group stress. In fact of the sixteen predicted positive correlations between experience and behaviors under stress only ten had the predicted sign.

Under low stress conditions for a low LPC leader, only one behavior, personal punishment, was correlated with intelligence. Of the predicted eight positive correlations between intelligence and behavior under low stress, only four were in the predicted direction.

Since the high LPC leader who is not under stress according to Fielder's model, seeks relationships outside the group, it was not expected that intelligence would be correlated with any of the measured behaviors since these behaviors are group related and the group is no longer of importance to the leader. This was exactly what was found, however, considering the lack of relationships found for the preceding three hypotheses, a lack of relationship may have been found here for reasons other than those hypothesized.

Surprisingly, in no case is the relationship between experience or intelligence and behavior under low stress significantly different from this relationship under high

stress. This seems to indicate that stress does not affect the relationship of intelligence or experience to behavior though it has been previously shown to effect the intelligence performance and experience performance relation.

In general, then, none of these hypotheses are firmly supported by the data, nor are any of their derivatives confirmed. Though performance under stress has been found to change significantly in other studies, the analysis presented here does not readily explain by which mechanisms performance is influenced by stress from either the group or the boss. In none of the 64 comparisons of behaviors under low or high stress conditions did behavior change achieve any level of conventional significance, that being  $p \leq .05$ . In two cases the comparisons approached statistical significance. Even chance should result in a greater number of statistically significant correlations that were found in this study.

#### Hypothesis VI

This hypothesis was a common sense conclusion that stress would make the job seem less enjoyable and more demanding for the individual working in the stressful environment. It was not, however, supported by the data.

The above results and lack of significant differences for low and high stress conditions stand in sharp contrast to the results presented in Tables 17 through 20. In these cases, for the intelligent low LPC leader, under boss stress, the job appears less effortful, while the high LPC leader



Table 17. Correlations of Intelligence with Each Perception (N in parentheses).

Perception	LPC	Low Boss Stress	High Boss Stress
Job Quality	Low	.33#(27)	.06 (17)
	High	.18 (18)	-.12 (29)
Job Effort	Low	.42*(27)	-.26 (17) <sup>a</sup>
	High	.03 (19)	-.06 (29)
Job Satisfaction	Low	.05 (27)	-.23 (17)
	High	-.35 (19)	-.09 (29)
Job Pleasantness	Low	.15 (27)	-.04 (14)
	High	.02 (19)	.04 (29)
Job Goodness	Low	.03 (26)	.07 (14)
	High	-.22 (18)	-.22 (29)
Job Value	Low	.14 (26)	-.11 (15)
	High	-.08 (18)	-.06 (29)
Job Joy	Low	.07 (26)	-.07 (13)
	High	-.04 (18)	-.10 (29)
Job Work	Low	.40*(27)	-.12 (17) <sup>b</sup>
	High	.10 (18)	-.10 (29)

\*  $p \leq .05$ #  $p \leq .10$ a  $p \leq .05$ b  $p \leq .10$

Table 18. Correlations of Intelligence with Each Perception  
(N in parentheses)

Perception	LPC	Low Group Stress	High Group Stress
Job Quality	Low	.09 (36)	.54 ( 8)
	High	-.13 (27)	.21 (20)
Job Effort	Low	.04 (36)	.42 ( 8)
	High	-.25 (28)	.32 (20) <sup>b</sup>
Job Satisfaction	Low	-.14 (36)	.34 ( 8)
	High	-.42*(28)	.07 (20) <sup>b</sup>
Job Pleasantness	Low	-.02 (33)	.29 ( 8)
	High	.07 (28)	-.15 (20)
Job Goodness	Low	.03 (33)	.06 ( 7)
	High	-.34#(28)	-.07 (19)
Job Value	Low	-.03 (34)	.10 ( 7)
	High	-.16 (28)	.01 (19)
Job Joy	Low	-.03 (32)	.13 ( 7)
	High	-.04 (28)	-.00 (19)
Job Work	Low	.08 (36)	.48 ( 8)
	High	-.25 (27)	.30 (20) <sup>b</sup>

\*  $p \leq .05$ #  $p \leq .10$ b  $p \leq .10$

Table 19. Correlations of Experience with Each Perception  
(N in parentheses).

Perception	LPC	Low Boss Stress	High Boss Stress
Job Quality	Low	.40*(27)	-.03 (17)
	High	.31 (18)	.34#(29)
Job Effort	Low	-.45*(27)	.04 (17)
	High	.13 (19)	.17 (29)
Job Satisfaction	Low	-.02 (27)	.33 (17)
	High	.41 (19)	.35#(29)
Job Pleasantness	Low	-.01 (27)	.18 (14)
	High	-.26 (19)	.18 (29)
Job Goodness	Low	.03 (26)	.06 (14)
	High	.18 (18)	.41*(29)
Job Value	Low	.08 (26)	.12 (15)
	High	-.09 (18)	.24 (29)
Job Joy	Low	.12 (26)	.15 (13)
	High	-.21 (18)	.36#(29) <sup>b</sup>
Job Work	Low	-.46*(27)	.01 (17)
	High	.30 (18)	.29 (29)

\*  $p \leq .05$ #  $p \leq .10$ b  $p \leq .10$

Table 20. Correlations of Experience with Each Perception (N in parentheses).

Perception	LPC	Low Group Stress	High Group Stress
Job Quality	Low	-.10 (36)	-.78*(8) <sup>a</sup>
	High	.38*(27)	.24 (20)
Job Effort	Low	-.07 (36)	-.83*(8) <sup>a</sup>
	High	.20 (28)	.08 (20)
Job Satisfaction	Low	.20 (36)	-.57 ( 8) <sup>b</sup>
	High	.37#(28)	.34 (20)
Job Pleasantness	Low	.24 (33)	-.50 ( 8) <sup>b</sup>
	High	-.16 (28)	.27 (20)
Job Goodness	Low	.04 (33)	.31 ( 7)
	High	.30 (28)	.38 (19)
Job Value	Low	.09 (34)	.19 ( 7)
	High	.10 (28)	.09 (19)
Job Joy	Low	.15 (32)	.29 ( 7)
	High	-.08 (28)	.31 (19)
Job Work	Low	-.09 (36)	-.81*( 8) <sup>a</sup>
	High	.36#(27)	.17 (20)

\*  $p \leq .05$ #  $p \leq .10$ a  $p \leq .05$ b  $p \leq .10$



in the same condition perceives no real difference from his less stressed counterpart. The more experienced high LPC leader under boss stress, on the other hand, sees his job as more enjoyable, while the low LPC leader perceives no difference.

The intelligent high LPC leader under group stress perceives the job as requiring more work, while the low LPC leader perceives no difference. The experienced low LPC leader under high group stress actually perceives his job as requiring less effort under stress.

The leader, then, under stress seems to change his perceptions without changing his actual behavior. He changes his feelings about the work rather than the way he does the work.

#### IV. DISCUSSION

This study presents some unexpected conclusions, considering the results of previous research relating intelligence and experience to performance. In brief, the results of the study may be stated as follows.

Under stress effective leaders are not necessarily more structuring while in the relaxed environment they are not necessarily more considerate. This is true whether the stress is from an external source (the boss) or from an internal source (the leader's group). Instead, the effective leader seems to perceive himself as more structuring though

his subordinates disagree.

Though it was previously found that under low group or boss stress intelligence correlated highly with performance and under high group or boss stress experience correlated positively with performance; the relationship of intelligence and experience to behaviors under stress remains unclear. Further, neither intelligence nor experience was significantly related to behavior of high and low LPC leaders under various degrees of boss stress. Two correlations were found to be significant with  $\alpha = .05$ , and none of the correlations for the low stress condition were significantly different from those of the high stress condition. In other words, neither intelligence nor experience differentially contributed to leader behaviors under these conditions. Similarly, under the two levels of group stress only two correlations between experience or intelligence and leader behavior reached statistical significance, and none of the correlations for the low stress condition were significantly different from the high stress condition correlations. Though intelligence and experience are related to performance under low or high stress, they do not have corresponding relationships to the behaviors which are the presumed basis for the supervisor's performance ratings. By pure chance, with  $\alpha = .05$ , one would expect six of the 128 correlations to be statistically significant. This was not the case. Only four correlations were found significant. Similarly, of the 64 comparisons of correlations

between low and high stress conditions, three should be significant due merely to chance. None were found to be significant. The intelligence and experience of the low or high LPC leaders do, however, correlate differentially with perceptions of the job. Thus, stress may not effect the intelligence-experience-behavior relationship, but it does influence the intelligence-experience-job perception relationship.

One explanation for this lack of relationship may be related to the measurement of the behavior. The measures used in this study are reliable and have been used successfully in previous research (Bons, 1974; Taylor, 1975), but they measure only the frequency with which the behavior was observed, not whether that behavior was appropriate for the demands of the situation. Fiedler (1964, 1967) has argued that when the leader's LPC is matched to the leadership situational demands, the leader will be rated as more effective. It seems that the intelligence and experience relationship to behavior may be greatly clarified if one analyzes the requirements of the situation as posited by Fiedler's Contingency Model. This model argues that low LPC leaders perform best in situations which are either very favorable or very unfavorable, and high LPC leaders perform best in situations which are moderate in favorableness.

Such an analysis was made, showing that whether the behavior was "appropriate" or "inappropriate" for the leadership

situation did have some influence on the intelligence/experience behavior relationship.

Tables 21 and 22 focus specifically upon the three "uses of power" behaviors; rewarding, personal punishments, and administrative punishments. As may be seen, when the leadership style is matched to the situational requirements as posited by the Contingency Model, the intelligent, low LPC leader in a favorable situation uses both punishments and rewards. In other words, he appears to control subordinate behavior by using contingent reinforcements. The experienced, low LPC leader in the favorable situation on the other hand does not use rewards or punishments. Apparently, then, intelligence helps the leader marshal all of his resources to perform the repertoire of behaviors demanded by the situation. Experience refines these behaviors, eliminating those that have been previously shown to be ineffective. Situation favorableness may measure a type of "job" stress that is not attributable to either the work group or the leader's boss. Thus in an unfavorable situation (high "job" stress) the intelligent leader punishes but the experienced leader does neither, and probably turns his attention to other things.

As reported earlier by Taylor (1975), there is no evidence from this sample that leaders intentionally altered their behaviors to increase their effectiveness as suggested by Tannenbaum and Schmidt (1975) and others. Instead, it appears that under stress the low or high LPC leader changes



Table 21. Correlations of Behaviors with Intelligence for Leaders Matched to SF (N in parentheses)

	Low SF	Mod SF	High SF
Reward Behavior	-.21 (20)	-.44 (12)	.87* (6)
Admin. Punishment	.16 (18)	-.11 (12)	.22 (7)
Personal Punishment	.41* (19)	-.19 (12)	.80* (7)

\*  $p \leq .05$

Table 22. Correlations of Behaviors with Experience for Leaders Matched to SF (N in parentheses)

	Low SF	Mod SF	High SF
Reward Behavior	.34 (20)	.29 (12)	-.51 (6)
Admin. Punishment	-.10 (18)	-.06 (12)	-.62 (7)
Personal Punishment	-.14 (19)	-.41 (12)	-.82* (7)

\*  $p \leq .05$

his perception of the job but not the job-related behaviors. There appears no indication that leader behaviors, as related to intelligence or experience, systematically change. The findings of this study are as important as they were unpredicted. Graen, Alvares, Orris, and Martell (1970, 1971) and more recently Ashour (1973) have criticized the contingency model's lack of examination of leader behavior concerning effectiveness. Kipnis and Consentino (1969) have emphasized that there have been few good studies of leader behavior. Thus, there has been great emphasis upon the study of leader behaviors. Likewise, theory and research by Leavitt (1951), Argyris (1957, 1964) and Bavelas (1963) among others have made it clear that the situation and specifically situational stress accounts for much of the behavior observed in individual leaders. When one does analyze the relationships of intelligence and experience to behaviors under stress, a consistent relationship was not found. Each of the correlations in Tables 13 through 16 were ranked from largest positive to largest negative within stress condition. Spearman Rank-Order correlations were then computed for all possible pairwise combinations of columns for the group stress or boss stress conditions. As may be seen from Tables 23 and 24, only one of these correlations is significant showing that under low group stress the relationship of intelligence to behavior is significantly different from the relationship of experience and behavior. With the exception of this one correlation,

Table 23. Rank Order Correlations for Group Stress.

	r <sup>Intel. x Behavior</sup>		r <sup>Exper x Behavior</sup>	
	Low Group Stress Cell 1	High Group Stress Cell 2	Low Group Stress Cell 3	High Group Stress Cell 4
Cell 1	---			
Cell 2	-.04	---		
Cell 3	-.89*	-.28	---	
Cell 4	.14	.19	.27	---

\*  $p \leq .05$ 

Table 24. Rank Order Correlations for Boss Stress.

	r <sup>Intel. x Behavior</sup>		r <sup>Exper x Behavior</sup>	
	Low Boss Stress Cell 1	Boss Stress Cell 2	Low Boss Stress Cell 3	High Boss Stress Cell 4
Cell 1	---			
Cell 2	-.02	---		
Cell 3	-.36	.03	---	
Cell 4	-.08	-.03	.02	---

the relationship between intelligence or experience, stress and behavior is best described as inconsistent. Thus, when an analysis of behaviors is made as advocated, using measures of behavior currently accepted in the field, no true relationship is found. This means that either the behaviors measured are not the ones effected by stress or that stress is not an important variable.

One explanation for this finding may come from the timing of the measures. Subjects for the study had just successfully completed their Army Training Test. Their units had been declared "combat ready". Such an official approval from the Army undoubtedly increases the confidence of many leaders. This is a highly reinforcing contingency and may cause the individual to perform the same behaviors in the future, even when stressed. Such learning is certainly the result of experience, but experience not measured in this study.

Likewise, during the ATT, the unit commander and subordinate leaders are held accountable for the training of their unit. The unit commander is under a great deal of stress and this stress is felt down to the lowest level as boss stress. Thus, when asked to rate boss stress the subject may be responding to his boss' behaviors over a very recent period, that of the ATT. On the other hand, the more general subordinate descriptions of behavior may be the response to the leader's actions over the entire six to nine month



interval between the initial and the followup measures.

Another reasonable explanation for the change of perceptions without changing behaviors comes from a close examination of the squad leader's role. As the first line supervisor of the military, his behavior is fairly standard throughout all similar units. There is little latitude for creativity. To cope with stress one must either change the situation, your own behavior, or your cognitive evaluations of your behavior and situation (perceptions). When the first two options are fixed, the remaining alternative demands a change of perception. Thus the squad leader cannot change behavior. He can only change his perceptions.

In response to Kipnis and Consentino's (1969) complaint that little had been done to examine the conditions under which the leader will exhibit reward and coercive behaviors, this study examined the conditions of boss and group stress. It found that stress is apparently not an important variable in determining the leader's use of intelligence or experience in relation to his behavior.

There are several limitations to this study. First, the sample of squad leaders may be atypical of most leaders. They have less latitude for creative leadership. In fact, since they occupy the lowest grade of non-commissioned officers in the Army, they may appear very similar to their men. In fact, the squad leader often instructs the men about the job and works with them in accomplishing it. Taylor (1975)

has argued that the squad leaders often identify more with their subordinates than with other leaders.

The sample was drawn from a unit that was in the process of mobilizing. Group relations, as well as superior-subordinate relations, and standard operating procedures were still being established. Conclusions concerning supervisory behaviors may not be generalizable to well-established organizations.

There were several limitations imposed due to measuring an infantry division in training and scheduling of testing during non-training periods. Some subjects could not be tested since this non-training time is also the time when commanders encourage soldiers to take leave.

Finally, several subjects had to be eliminated from the original sample, because their LPC scores were not stable over the period of the study or did not have ratings by two superiors. This restriction of the sample limits the generalizability of the findings.

This study has obvious implications for current rating procedures. Though ratings are ostensibly based upon the rater's observations of the leader's behaviors we know that performance is influenced by intelligence, experience, and stress, while behaviors are not so influenced. Instead individual perceptions of the job are influenced by stress. Whether raters are being more influenced by actual performance and behaviors or by the subordinates' attitudes and perceptions remains a question for future investigation.

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APPENDIX

## APPENDIX

## Performance Evaluation

In comparison to all individuals I know of in a similar position, I rate this individual as follows: (circle one)	Code _____					
	Greatly exceeds job requirements	Exceeds job requirements	Meets job requirements	Needs improvement on job requirements	Does not meet job requirements	Not a requirement for this position or not applicable
1. The way he carries out administrative actions required of him as a leader of a unit in keeping with SOP's & REG's.	5	4	3	2	1	0
2. The way he knows & understands the personal problems of subordinates & considers their suggestions & feelings.	5	4	3	2	1	0
3. Has rapport with his subordinates without becoming overly familiar.	5	4	3	2	1	0
4. Has technical proficiency with the available methods, techniques & equipment necessary to do the job.	5	4	3	2	1	0
5. The extent to which he takes the initiative to propose & carry out innovations relating to the job & to the supervision of his people.	5	4	3	2	1	0
6. The way he organizes his people and specifies ways of getting the job done.	5	4	3	2	1	0
7. The way he works with unit officers and NCO's & yourself to accomplish the mission.	5	4	3	2	1	0

## APPENDIX (continued)

	Greatly exceeds job requirements	Exceeds job require- ments	Meets job require- ments	Needs improvement on job requirements	Does not meet job requirements	Not a requirement for this position or not applicable
8. The way he handles his job when demands are extra heavy or when he finds himself under severe pressure.	5	4	3	2	1	0